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REMARKS

Amendments to the claims

Claim 11 has been amended to recite "fusing the optical fibers together along a section of each optical fiber proximate the first end to form a fused section, ~~so that the second end of the fibers remain detached from each other~~" and "tapering the fused section of the optical fibers such that a core diameter of each optical fiber proximate the first end is smaller than the core diameter proximate the second end, wherein tapering the fused section comprises uniformly stretching the plurality of optical fibers to provide a desired amount of optical coupling between each optical fiber". The amendments of claim 11 are supported by the application as filed. For example, claim 11 as amended recites the features of original claims 11 and 18.

Claim 18 has been cancelled.

Claims 2-6 and 10 have been made dependent on claim 28 and the language of claim 6 has been corrected.

Claim 8 has been made dependent on claim 6.

Claim 17 has been made dependent on claim 15.

Claims 20 and 27 have been amended to recite "a plurality of single mode optical fibers".

Claim 20 has further been amended to recite "a facet, said facet being formed by cleaving or cutting and polishing the tapered region in a direction perpendicular to said fiber axis, wherein the facet is adapted to receive a single optical input, the single optical input being distributed amongst each optical fiber in the plurality of optical fibers, wherein each optical fiber receives an optical input at the second end, and wherein the optical inputs are emitted from the facet into free space as a single combined optical output".

New claim 29 has been added. Claim 29 recites the features of claim 9, taken in its dependency on original claim 1. The feature reciting that the facet is perpendicular to the fibers has been cancelled, and the term "uniformly stretched" has been replaced by the term "stretched".

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New claim 30 has been added to recite, taken in its dependency of claim 29, the features recited in claim 28.

No new matter has been added.

Applicants submit that all the amendment to the claims are done without prejudice, and expressly reserve the right to prosecute the original claim features in this application or in any derivative thereof.

Rejection under 35 U.S.C. 102

Claims 1, 4, 5, 8-11, 14, 17, 18, 19, 27 and 28 stand rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,932,747 to Russel. Applicants respectfully disagree.

Claim 1

In the Action, the Examiner asserts that Russel teaches a plurality of optical fibers 15, wherein the second end 15a of the fibers are detached from each other (column 4, lines 46-51, Figure 3). Applicants respectfully disagree, and note that, contrary to the Examiner's assertion, Russel teaches, for example at step 60 of Fig. 4, to closely pack the input ends (15a) of the fibers, whereby teaching away from keeping the fiber ends "detached from each other" as recited in claim 1. At least in view of the above, Applicants submit that claim 1 is patentable over Russel.

Claim 27

Claim 27 has been amended to recite a fiber optic apparatus comprising "*a plurality of single mode silica optical fibers*". Applicants note that Russel provides (see Abstract) for a device for transmitting laser light comprised of a bundle array of UV-grade optical fibers having its individual fibers intermingled in a random or predetermined format, that collects light having a given pattern from a multimode excimer laser, and outputs light homogenized by the intermingling of the fibers. Applicants note that the Examiner has failed to show that Russel discloses or suggests

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using single mode fibers, and respectfully submit that at least in view of the above, claim 27 as amended is patentable over Russel.

Claim 28

In the Action, the Examiner asserts that Russel shows a device "where the fibers comprising the fused sections are stretched to provide a desired amount of coupling between the individual fibers (column 6, lines 32-35)". Applicants respectfully disagree.

Applicants note that in column 6, lines 32-35, Russel teaches using an optic fiber bundle to couple an excimer laser to a processing chamber, but does nowhere disclose or suggest that there may be any coupling between the fibers in the fused section. Russel also does not mention stretching the optical fibers. Should the Examiner disagree, Applicants respectfully request the Examiner to point out where Russel discloses or suggests that (i) stretching occurs and (ii) there may be any coupling between the fibers in the fused section, in accordance with 37 C.F.R. 1.104(c)2.

Applicants note that the Examiner opines that "it is inherent that varying amounts of stretch will physically correspond with varied degrees of coupling, as attached in the attached Affidavit pursuant to 37 C.F.R. 1.104(d)(2)". Applicant respectfully submit that it is not consistent to assert that Russel shows a device "where the fibers comprising the fused sections are stretched to provide a desired amount of coupling between the individual fibers" and to provide an Affidavit citing another reference (U.S. 5,150,439 to Hill) to show that "it is inherent that varying amounts of stretch will physically correspond with varied degrees of coupling": if Russel actually shows a device "where the fibers comprising the fused sections are stretched to provide a desired amount of coupling between the individual fibers" as alleged by the Examiner, why not cite Russel in the Affidavit to show that "it is inherent that varying amounts of stretch (to use the words adopted by the Examiner) will physically correspond with varied degrees of coupling"? Applicants respectfully submit that by not citing Russel in the Affidavit, the Examiner actually acknowledges that Russel does not show the above feature.

Further, Applicants note that Russel explicitly teaches (column 6, lines 26-29) that

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"the exit ends of optical fibers of the FBH collectively may be tapered and suitably formed for the size and shape of the required materials processing operation. This capability eliminates the subsequent need for reshaping and focusing the rectangular excimer profile and the associated energy losses that may otherwise be encountered". Accordingly, Applicants respectfully submit that, even if tapering the fibers actually inherently introduces stretching and degrees of coupling between the fibers, as asserted by the Examiner, Russel explicitly recites that the tapering of the fibers is directed towards achieving desired physical dimensions, and not achieving a desired amount of optical coupling. Applicants submit that compressing the fibers to achieve desired physical dimensions is not compatible with, and therefore teaches away from stretching the fibers to achieve a desired coupling since, at the very least, the desired physical dimensions would correspond to a given optical coupling, not a desired or predetermined optical coupling.

In view of the above, Applicants submit that Russel does not teach or suggest a fiber optic apparatus as recited in claim 28, and in particular "*wherein the plurality of optical fibers disposed in the fused section are stretched to provide a desired amount of optical coupling between each optical fiber*". Accordingly, Applicants submit that claim 28 is patentable over Russel.

Claim 11

Claim 11 has been amended to recite a method "*wherein tapering the fused section comprises uniformly stretching the plurality of optical fibers to provide a desired amount of optical coupling between each optical fiber*". Applicants respectfully submit that the above arguments can be used to show that Russel does not disclose or suggest a method as recited in claim 11, and in particular "*wherein tapering the fused section comprises uniformly stretching the plurality of optical fibers to provide a desired amount of optical coupling between each optical fiber*". Accordingly, Applicants submit that claim 11 is patentable over Russel.

Claims 4, 5, 8-10, 14, 17, 18 and 19

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Claim 18 has been cancelled without prejudice. Claims 4, 5, 8 and 10 have been made directly or indirectly dependent on claim 28, claim 9 depends on claim 1, and claims 14, 17 and 19 depend on claim 11. Applicants submit that claims 4, 5, 8-10, 14, 17 and 19 4, 9-10, 18 and 19 are patentable over Russel at least in view of their dependency on claims 28, 1 or 11.

Rejection under 35 U.S.C. 103

Claims 2 and 13 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Russel in view of U.S. Pat. No. 6,827,500 to Basavanhally; claims 3 and 12 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Russel in view of U.S. Pat. No. 5,045,100 to Smith; claims 7 and 16 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Russel in view of Smith and further in view of U.S. Pat. No. 6,411,762 to Anthon; claims 6 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Russel in view of U.S. Pat. No. 5,30373 to Harootian; claims 20, 23, 25 and 26 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Harootian; claim 21 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Harootian in view of Basavanhally; claim 22 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Harootian in view of Smith; and claim 24 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Harootian in view of Smith and further in view of Anthon. Applicants respectfully disagree.

Claims 2 and 13

Claim 2 has been made dependent on claim 28, and claim 13 depends on claim 11. Applicants submit that the Examiner has failed to show that Basavanhally discloses or suggests an apparatus as recited in claim 28, and in particular "*wherein the plurality of optical fibers disposed in the fused section are stretched to provide a desired amount of optical coupling between each optical fiber*", or a method as recited in claim 11, and in particular "*wherein tapering the fused section comprises uniformly stretching the plurality of optical fibers to provide a desired amount of optical coupling between each optical fiber*". Accordingly, and in view of the above discussion of Russel with regards to claims 28 and 11, Applicants

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respectfully submit that the Examiner has failed to show that any combination of Russel and Basavanhally would have led one of ordinary skill in the art to an apparatus as recited in claim 28 or to a method as recited in claim 11. Accordingly, Applicants respectfully submit that claims 28 and 11 are patentable over Russel in view of Basavanhally. Applicants submit that at least in view of their dependency, claims 2 and 13 are patentable over Russel in view of Basavanhally.

Claims 3 and 12

Claim 3 has been made dependent on claim 28, and claim 12 depends on claim 11. Applicants submit that the Examiner has failed to show that Smith discloses or suggests an apparatus as recited in claim 28, and in particular "*wherein the plurality of optical fibers disposed in the fused section are stretched to provide a desired amount of optical coupling between each optical fiber*", or a method as recited in claim 11, and in particular "*wherein tapering the fused section comprises uniformly stretching the plurality of optical fibers to provide a desired amount of optical coupling between each optical fiber*". Accordingly, and in view of the above discussion of Russel with regards to claims 28 and 11, Applicants respectfully submit that the Examiner has failed to show that any combination of Russel and Smith would have led one of ordinary skill in the art to an apparatus as recited in claim 28 or to a method as recited in claim 11. Accordingly, Applicants respectfully submit that claims 28 and 11 are patentable over Russel in view of Smith. Applicants submit that at least in view of their dependency, claims 3 and 12 are patentable over Russel in view of Smith.

Claims 7 and 16

Claim 7 has been made indirectly dependent on claim 28, and claim 16 depends on claim 11. Applicants submit that the Examiner has failed to show that Anthon discloses or suggests an apparatus as recited in claim 28, and in particular "*wherein the plurality of optical fibers disposed in the fused section are stretched to provide a desired amount of optical coupling between each optical fiber*", or a method as recited in claim 11, and in particular "*wherein tapering the fused section comprises uniformly stretching the plurality of optical fibers to provide a desired amount of optical coupling between each optical fiber*".

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Accordingly, and in view of the above discussion with regards to claims 3 and 12, Applicants respectfully submit that the Examiner has failed to show that any combination of Russel, Smith and Anthon would have led one of ordinary skill in the art to an apparatus as recited in claim 28 or to a method as recited in claim 11. This is particularly true if the Examiner assertion that Anthon's technology minimizes "any input that may be passed from the optical fiber within the bundle to another" is correct. How would such a combination yield "a desired amount of optical coupling" as claimed? If anything, does the cited prior art not suggest that optical coupling between fibers is not particularly desirable outside Hill's optical coupler, for example?

Accordingly, Applicants respectfully submit that claims 28 and 11 are patentable over Russel in view of Smith and further in view of Anthon. Applicants submit that at least in view of their dependency, claims 7 and 16 are patentable over Russel in view of Smith and further in view of Anthon.

Claims 6 and 15

Claim 6 has been made dependent on claim 28, and claim 15 depends on claim 11. Applicants submit that the Examiner has failed to show that Harootian discloses or suggests an apparatus as recited in claim 28, and in particular "*wherein the plurality of optical fibers disposed in the fused section are stretched to provide a desired amount of optical coupling between each optical fiber*", or a method as recited in claim 11, and in particular "*wherein tapering the fused section comprises uniformly stretching the plurality of optical fibers to provide a desired amount of optical coupling between each optical fiber*". Accordingly, and in view of the above discussion of Russel with regards to claims 28 and 11, Applicants respectfully submit that the Examiner has failed to show that any combination of Russel and Harootian would have led one of ordinary skill in the art to an apparatus as recited in claim 28 or to a method as recited in claim 11. Accordingly, Applicants respectfully submit that claims 28 and 11 are patentable over Russel in view of Harootian. Applicants submit that at least in view of their dependency, claims 6 and 15 are patentable over Russel in view of Harootian.

Claim 20

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Claim 20 has been amended to recite "*a plurality of single mode optical fibers*". Applicants respectfully submit that the Examiner has failed to show that Harootian shows "*a plurality of single mode optical fibers*", as recited in amended claim 20. At least in view of the above, Applicants submit that claim 20 is patentable over Harootian.

Claims 23, 25 and 26

Claims 23, 25 and 26 depend on claim 20. Applicants submit that at least in view of their dependency on claim 20, claims 23, 25 and 26 are patentable over Harootian.

Claim 21

Claim 21 depends on claim 20. Applicants respectfully submit that the Examiner has failed to show that Basavanhally discloses, *inter alia*, "*a plurality of single mode optical fibers*". Accordingly and in view of the above discussion of Harootian relative to claim 20, Applicants submit that the Examiner has failed to show that any combination of Harootian and Basavanhally would have led one of ordinary skill in the art to an apparatus as recited in claim 20. Applicants therefore respectfully submit that claim 20 is patentable over Harootian and Basavanhally, and that at least in view of its dependency, claim 21 is patentable over Harootian in view of Basavanhally.

Claim 22

Claim 22 depends on claim 20. Applicants respectfully submit that the Examiner has failed to show that Smith discloses, *inter alia*, "*a plurality of single mode optical fibers*". Accordingly and in view of the above discussion of Harootian relative to claim 20, Applicants submit that the Examiner has failed to show that any combination of Harootian and Smith would have led one of ordinary skill in the art to an apparatus as recited in claim 20. Applicants therefore respectfully submit that claim 20 is patentable over Harootian and Smith, and that at least in view of its dependency, claim 22 is patentable over Harootian in view of Smith.

Claim 24

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Claim 24 depends on claim 20. Applicants respectfully submit that the Examiner has failed to show that Anthon discloses, *inter alia*, "*a plurality of single mode optical fibers*". Accordingly and in view of the above discussion relative to claim 22, Applicants submit that the Examiner has failed to show that any combination of Harootian, Smith and Anthon would have led one of ordinary skill in the art to an apparatus as recited in claim 20. Applicants therefore respectfully submit that claim 20 is patentable over Harootian, in view of Smith and further in view of Anthon, and that at least in view of its dependency, claim 24 is patentable over Harootian in view of Smith and further in view of Anthon.

New claims

Claim 29

Claim 29 recites a fiber optic apparatus "*wherein the plurality of optical fibers disposed in the fused section are stretched to provide a desired amount of optical coupling between each optical fiber*". Applicants respectfully submit that the Examiner has failed to show that any of the cited references shows a fiber optic apparatus "*wherein the plurality of optical fibers disposed in the fused section are stretched to provide a desired amount of optical coupling between each optical fiber*", and accordingly that any combination of the cited references would have led one of ordinary skill in the art to an apparatus as recited in claim 29. Accordingly, Applicants respectfully submit that claim 29 is patentable over the cited references.

Claim 30

Claim 30 depends on claim 29. applicants respectfully submit that at least in view of its dependency, claim 30 is patentable over the cited references.

In view of the above, Applicants submit that the application is now in condition for allowance and respectfully urge the Examiner to pass this case to issue.

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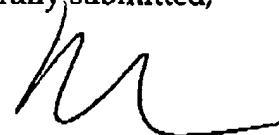
The Commissioner is authorized to charge any additional fees that may be required or credit overpayment to deposit account no. 12-0415. In particular, if this response is not timely filed, the Commissioner is authorized to treat this response as including a petition to extend the time period pursuant to 37 CFR 1.136(a) requesting an extension of time of the number of months necessary to make this response timely filed and the petition fee due in connection therewith may be charged to deposit account no. 12-0415.

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November 23, 2005
(Date of Transmission)

Laurent Lusinchi
(Name of Person Transmitting)

Respectfully submitted,



Richard Berg
Attorney for Applicants
Reg. No. 28,145
LADAS & PARRY
5670 Wilshire Boulevard, Suite 2100
Los Angeles, California 90036
(323) 934-2300 voice
(323) 934-0202 facsimile

(Signature)

November 23, 2005
(Date)